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EXAMINER	
SHEW, JOHN	

ART UNIT	PAPER NUMBER
2664	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/770,832	MITTAL ET AL.	
	Examiner	Art Unit	
	John L. Shew	2664	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 7/1/2005.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) _____ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) 32,35,41-43 and 47 is/are allowed.

6)☒ Claim(s) 1-5,7,8,10-12,20,21,23-30,36-40,44-46 and 48-51 is/are rejected.

7)☒ Claim(s) 6,9,13-19,22,31,33,34 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 20 December 2004 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. The indicated allowability of claims 20-31, 36-37, 39, 44-46 are withdrawn in view of the newly discovered reference(s) to Chawla et al. (Patent Number 6876668). Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 48-50 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification fails to disclose an "an ingress memory hub when operating in an egress memory hub" nor "an egress memory hub when operating in an ingress memory hub".

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 20, 21, 24, 36, 37, 38, 51, 44, 45, 46 are rejected under 35 U.S.C. 102(e) as being anticipated by Chawla et al. (Patent Number 6876668).

Claim 20, Chawla teaches a method for forwarding packets in a network processing device (FIG. 3) referenced by the Data Communications Device 201-B forwarding packets through the Data Transporter 300 in a network, comprising receiving packets associated with ingress flows (FIG. 2, column 3 lines 28-31, FIG. 4) referenced by the reception of packets at Input Port 505 wherein the packets contain flow information field TSPEC 191, assigning internal ingress flow ID values to the packets that identify packets having similar processing requirements (FIG. 5, column 19 lines 21-25) referenced by the Label Calculator 554 assigning Flow ID's to the packets based on the

resource allocation calculation, assigning the internal flow ID values independently of source addresses or destination addresses associated with the packets (column 18 TABLE 1) referenced by the Session ID mapped to bandwidth in relation to input and output ports of the device and not the source and destination address of the packet, queuing the packets for sending to an egress queue according to the associated ingress flow Id values (FIG. 5, column 16 lines 12-33,40-49) referenced by the Data Scheduler 320 forwarding packets to select queues of the Data Storage Mechanism 340-1 base on FLOW ID labels, outputting the queued packets to an egress memory hub according to the ingress flow ID values (FIG. 3) referenced by the forwarding of the packet from memory hub Data Communications Device 201-B to memory hub Data Communications Device 201-C using the associated TSPEC value.

Claim 21, Chawla teaches including managing memory operations for queuing the packets in a first integrated circuit (FIG. 4, column 13 lines 51-67, column 14 lines 1-14) referenced by the Bandwidth Reservation Processor 500 handling communications with the external memory Network Policy Server 150 to assign the Flow ID labels for queuing, and independently managing in a second integrated circuit how the queued packets are scheduled for being output (FIG. 4) referenced by the separate Data Transporter 300 including the Data Scheduler 320.

Claim 24, Chawla teaches identifying egress flows for the ingress flows and assigning the identified egress flows to the packets before being output (FIG. 2, column 3 lines 19-

32, FIG. 4) referenced by the use of the TSPEC field for ingress flow information which necessitates a corresponding TSPEC field for egress flow information for data out from the Output Port 506.

Claim 36, Chawla teaches providing Class of Service (column 18 TABLE 1) referenced by the Requested Reserved Bandwidth for class of service, or forwarding label value with the received packets (column 18 TABLE 1) referenced by the Session ID.

Claim 37, Chawla teaches providing Class of Service (column 18 TABLE 1) referenced by the Requested Reserved Bandwidth for class of service, or forwarding label value (column 18 TABLE 1) referenced by the Session ID, in a memory hub data structure (FIG. 5, column 18 lines 9-15) referenced by the Data Storage Mechanism queue 340-1 wherein the queues of the data storage locations are labeled.

Claim 38, Chawla teaches a memory hub (FIG. 4, column 11 lines 47-59) referenced by the Data Communications Device 201 such as router or hub which contains data storage for memory, comprising a first interface for receiving packets or packet fragments having associated flow Ids (FIG. 2, FIG. 4, column 13 lines 51-67, column 14 lines 1-2) referenced by the input port 505 receiving packets with the TSPEC 191 field as flow id, a second interface for outputting the packets or packet fragments (FIG. 4, column 13 lines 51-67, column 14 lines 1-2) referenced by the Data Transporter 300 for switching data to the output port 506, a third interface for communicating with another

memory hub (FIG. 4, column 14 lines 3-13) referenced by the Network Policy Server 150 which has memory carrying policy information on bandwidth use, and a controller that queues the packets or packet fragments in a memory according to the associated flow Ids (FIG. 5, column 17 lines 16-50) referenced by the Data Scheduler 320 depositing packets to the Data Storage Mechanism queue 340-1 based on the TSPEC 191 field associated to a session, and dequeues the packets from the memory according to the associated flow Ids (FIG. 5, column 16 lines 40-65) referenced by the Dequeuing Mechanism 350 removing packets from the Data Storage Mechanism 340-1 which are assigned label queues.

Claim 51, Chawla teaches wherein the third interface is used for sending information related to forwarding labels ingress flow Id's and control packets (column 12 lines 34-38) referenced by the requests to the Network Policy Server 150 for information of how much bandwidth to reserver for flows streams or sessions.

Claim 44, Chawla teaches a memory hub (FIG. 4, column 11 lines 47-59) referenced by the Data Communications Device 201 such as router or hub which contains data storage for memory, comprising a first interface for receiving packets or packet fragments having associated flow Ids (FIG. 2, FIG. 4, column 13 lines 51-67, column 14 lines 1-2) referenced by the input port 505 receiving packets with the TSPEC 191 field as flow id, a second interface for outputting the packets or packet fragments (FIG. 4, column 13 lines 51-67, column 14 lines 1-2) referenced by the Data Transporter 300 for

switching data to the output port 506, a controller that queues the packets or packet fragments in a memory according to the associated flow Ids (FIG. 5, column 17 lines 16-50) referenced by the Data Scheduler 320 depositing packets to the Data Storage Mechanism queue 340-1 based on the TSPEC 191 field associated to a session, and dequeues the packets from the memory according to the associated flow Ids (FIG. 5, column 16 lines 40-65) referenced by the Dequeuing Mechanism 350 removing packets from the Data Storage Mechanism 340-1 which are assigned label queues, a third interface configured to receive the packets with updated packet header back from the egress packet processor (FIG. 5, column 16 lines 40-65, column 21 lines 49-59) referenced by the Dequeuing Mechanism 350 removing packets from the Data Storage Mechanism 340-1 which are assigned dynamically bandwidth label queues, and a fourth interface for outputting the updated packets to an egress interface circuit (FIG. 4) referenced by the output port 506 for data out.

Claim 45, Chawla teaches a memory hub (FIG. 4, column 11 lines 47-59) referenced by the Data Communications Device 201 such as router or hub which contains data storage for memory, comprising a first interface for receiving packets or packet fragments having associated flow Ids (FIG. 2, FIG. 4, column 13 lines 51-67, column 14 lines 1-2) referenced by the input port 505 receiving packets with the TSPEC 191 field as flow id, a second interface for outputting the packets or packet fragments (FIG. 4, column 13 lines 51-67, column 14 lines 1-2) referenced by the Data Transporter 300 for switching data to the output port 506, a controller that queues the packets or packet

fragments in a memory according to the associated flow Ids (FIG. 5, column 17 lines 16-50) referenced by the Data Scheduler 320 depositing packets to the Data Storage Mechanism queue 340-1 based on the TSPEC 191 field associated to a session, and dequeues the packets from the memory according to the associated flow Ids (FIG. 5, column 16 lines 40-65) referenced by the Dequeuing Mechanism 350 removing packets from the Data Storage Mechanism 340-1 which are assigned label queues, wherein the packets or packet fragment include an egress flow Id (FIG. 2) referenced by the outgoint packet TSPEC field 191 as the flow id.

Claim 46, Chawla teaches a memory hub (FIG. 4, column 11 lines 47-59) referenced by the Data Communications Device 201 such as router or hub which contains data storage for memory, comprising a first interface for receiving packets or packet fragments having associated flow Ids (FIG. 2, FIG. 4, column 13 lines 51-67, column 14 lines 1-2) referenced by the input port 505 receiving packets with the TSPEC 191 field as flow id, a second interface for outputting the packets or packet fragments (FIG. 4, column 13 lines 51-67, column 14 lines 1-2) referenced by the Data Transporter 300 for switching data to the output port 506, a controller that queues the packets or packet fragments in a memory according to the associated flow Ids (FIG. 5, column 17 lines 16-50) referenced by the Data Scheduler 320 depositing packets to the Data Storage Mechanism queue 340-1 based on the TSPEC 191 field associated to a session, and dequeues the packets from the memory according to the associated flow Ids (FIG. 5, column 16 lines 40-65) referenced by the Dequeuing Mechanism 350 removing packets

from the Data Storage Mechanism 340-1 which are assigned label queues, and a data structure that includes a Class of Service or forwarding label value (column 18 TABLE 1) referenced by the queue mapped to Session ID assigned to Requested Bandwidth class of service and forwarding label output port.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 2, 3, 4, 5, 8, 10, 11, 12, 23, 25, 26, 28, 30, 27, 40, 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chawla et al. (Patent Number 6876668) as applied to claims 20, 21, 24, 36, 37, 38, 51, 44, 45, 46 above, in view of Merchant et al (Patent Number 6584106).

Claim 1, Chawla teaches a memory hub (FIG. 4, column 11 lines 47-59) referenced by the Data Communications Device 201 such as router or hub which contains data storage for memory, comprising a first ingress interface for receiving from a source port packets having associated ingress flows (FIG. 2, FIG. 4, column 13 lines 51-64) referenced by the input port 505 for receiving packets inclusive of a TSPEC 191 which is used to associate to an ingress flow, and assigning ingress flow values to the packets associated with the ingress flows that identify packets having similar Class of Service processing requirements (column 15 lines 46-59, FIG. 4, column 17 lines 39-50, TABLE 1) referenced by the Bandwidth Labeler 550 which assigns a Flow ID wherein each flow id corresponds to a requested reserved bandwidth, and storing the packets in an ingress memory (FIG. 4, column 15 lines 7-25) referenced by the Data Storage Mechanism 340, an ingress controller that queues the packets or cells in the ingress memory for sending to the egress memory according to the Class of Service processing requirements identified by the associated ingress flow values (FIG. 5, column 15 lines 32-45) referenced by the Data Scheduler 320 assigning the packet to the Data Storage Mechanism 340-1 Queue based on the Flow ID. Chawla does not teach a second ingress interface for outputting packets to a switch fabric.

Merchant teaches a first ingress interface (FIG. 3A) referenced by the MAC Port 70a and a second ingress interface (FIG. 3A) referenced by the write data bus 69a, for outputting packets or cells to a switch fabric (FIG. 3B) referenced by the Port Vector FIFO 56 which is a switch fabric of the Integrated Multiport Switch, connecting the first and second ingress interface to an egress interface and egress memory (FIG. 3A)

referenced by the Port Vector FIFO 56 sending packets to the Dequeuing Logic 76 of the output MAC Port 70c.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the backbone switch forwarding scheme of Merchant to the dynamic bandwidth classification method of Chawla for the purpose of providing a network switch with a decision making engine responsive to a received data packet to control its forwarding to a transmit port as suggested by Merchant (column 2 lines 13-16).

Claim 2, Chawla teaches an ingress traffic manager that schedules how the packets or cells are output (FIG. 5, column 15 lines 32-45) referenced by the Data Scheduler 320 assignment of packets to the queue of the Data Storage Mechanism 340-1, the traffic manager modifying an assigned Class of Service for the packets and assigning the modified Class of Service to the packets before being output (FIG. 4, column 17 lines 29-50, column 18 lines 8-18) referenced by the Bandwidth Reservation Processor 500 assigning Flow ID from the TSPEC field. Chawla does not teach a switch fabric. Merchant teaches output of an ingress Queuing Logic to a Switch Fabric (FIG. 3A) referenced by the Queuing Logic 74 to Port Vector FIFO 56.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the backbone switch forwarding scheme of Merchant to the dynamic bandwidth classification method of Chawla for the purpose of providing a network switch with a decision making engine responsive to a received data packet to

control its forwarding to a transmit port as suggested by Merchant (column 2 lines 13-16).

Claim 3, Chawla teaches wherein the ingress traffic manager schedules outputting of the packets or cells on a per Class of Service basis or per destination basis (column 18 TABLE 1) referenced by the session id mapped to class of service based on requested reserved bandwidth and destination of the session path. Chawla does not teach a switch fabric.
Merchant teaches output of an ingress Queuing Logic to a Switch Fabric (FIG. 3A) referenced by the Queuing Logic 74 to Port Vector FIFO 56.
It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the backbone switch forwarding scheme of Merchant to the dynamic bandwidth classification method of Chawla for the purpose of providing a network switch with a decision making engine responsive to a received data packet to control its forwarding to a transmit port as suggested by Merchant (column 2 lines 13-16).

Claim 4, Chawla teaches wherein the ingress controller manages memory operation for queuing the packets or cells independently of controls from the ingress traffic manager (FIG. 4, column 13 lines 51-65) referenced by the Data Scheduler 320 managing packet assignment to the Data Storage Mechanism 340 separate from the Bandwidth Request Handler 520 managing the traffic bandwidth.

Claim 5, Chawla teaches wherein the ingress controller and the ingress traffic manager are separate circuits operating on separate integrated circuits (FIG. 4) referenced by the Data Scheduler 320 is integrated into the Data Transporter 300 and the Bandwidth Request Handler 520 is integrated into the Bandwidth Reservation Processor 500 which are separate processors.

Claim 8, Chawla teaches wherein the ingress flow values are assigned independently of the source port receiving the packets (FIG. 2, FIG. 4) referenced by the input packet inclusive of the ingress flow value of theTSPEC field 191 which is already present and thus independent of the receiving input port 505.

Claim 10, Chawla teaches forwarding label fields for assigning forwarding labels to the packets or cells according to the associated ingress flows (FIG. 4, column 17 lines 29-50, FIG. 6B) referenced by the Bandwidth Labeler 550 assigning Flow ID's to the packets A B C based on the ingress TSPEC field.

Claim 11, Chawla teaches wherein the forwarding label fields contain information for establishing a path in the switching fabric to a destination port (column 18 TABLE 1) referenced by the Session ID equivalent to the Flow ID mapped to the port-to-port session path including a destination port.

Claim 12, Chawla teaches wherein the memory hub is an integrated circuit (FIG. 4, column 11 lines 47-59) referenced by the Data Communications Device 201 which is a router composed of integrated circuits, having a first interface for communicating with one or more source ports (FIG. 4, column 13 lines 51-67, column 14 lines 1-2) referenced by the input port 505, a second interface for communicating with an ingress traffic manger (FIG. 4, column 13 lines 51-67, column 14 lines 1-2) referenced by the Bandwidth Reservation Processor 500, a third interface for communicating with a switch fabric (FIG. 4, column 13 lines 51-67, column 14 lines 1-2) referenced by the Data Transporter 300 for switching data to the output port 506, and a fourth interface for communicating with an external memory (FIG. 4, column 14 lines 3-13) referenced by the Network Policy Server 150 which has memory carrying policy information on bandwidth use.

Claim 23, Chawla teaches outputting the queued packets on a per flow basis and requeuing the output packets on a per Class of Service basis (FIG. 5) referenced by the Data In queue to the Data Scheduler 320 with the associated flow TSPEC fields and forwarded to Data Storage Mechanism queue 340-1 for class of service Flow ID assignment based on bandwidth reservation. Chawla does not teach outputting to a switch fabric.

Merchant teaches queuing output packets for outputting to a switch fabric (FIG. 3A) referenced by the input port Queue Logic 74 for forwarding to the switch fabric Port

Vector FIFO 56, for sending to an egress memory (FIG. 3A) referenced by the Dequeuing Logic 76 of output port.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the backbone switch forwarding scheme of Merchant to the dynamic bandwidth classification method of Chawla for the purpose of providing a network switch with a decision making engine responsive to a received data packet to control its forwarding to a transmit port as suggested by Merchant (column 2 lines 13-16).

Claim 25, Chawla teaches queuing the packets according to the ingress flow ID values (FIG. 5) referenced by the Data Storage Mechanism queue 340-1 based on flow id labels. Chawla does not teach sending the packets over a switch fabric to an egress queue.

Merchant teaches sending the packets over a switch fabric (FIG. 3A, FIG. 3B) referenced by the input port Queuing Logic 74 forwarding packets to the switch fabric Port Vector FIFO 56, to an egress queue then re-queuing the packets in the egress queue for outputting over an external network interface (FIG. 3A) referenced by the forwarding of the packet from the Port Vector FIFO 56 to the Dequeuing Logic 76 of output port 70 for re-queuing prior to transmission to the network.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the backbone switch forwarding scheme of Merchant to the dynamic bandwidth classification method of Chawla for the purpose of providing a

network switch with a decision making engine responsive to a received data packet to control its forwarding to a transmit port as suggested by Merchant (column 2 lines 13-16).

Claim 26, Chawla teaches identifying a Class of Service for the ingress flows and assigning the Class of Service to the packets (FIG. 2, FIG. 4, column 17 lines 29-50) referenced by the ingress field TSPEC and the label Flow ID class of service based on bandwidth assigned to the packets. Chawla does not teach outputting the packets to a switch fabric.

Merchant teaches output of the ingress flow packets to a switch fabric (FIG. 3A) referenced by the Queuing Logic forwarding of the packets to the Port Vector FIFO 56 switch fabric.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the backbone switch forwarding scheme of Merchant to the dynamic bandwidth classification method of Chawla for the purpose of providing a network switch with a decision making engine responsive to a received data packet to control its forwarding to a transmit port as suggested by Merchant (column 2 lines 13-16).

Claim 28, Chawla teaches tracking ingress flow information for the packets (FIG. 2, column 17 lines 29-50, column 18 TABLE 1) referenced by the mapping of the TSPEC field flow information to the session id, and scheduling the packets for outputting

according to the tracked ingress flow information (FIG. 5) referenced by the Data Scheduler 320 for forwarding to the Data Storage Mechanism queue 340-1 based on the label flow id. Chawla does not teach outputting the packets to a switch fabric. Merchant teaches output of the ingress flow packets to a switch fabric (FIG. 3A) referenced by the Queuing Logic forwarding of the packets to the Port Vector FIFO 56 switch fabric.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the backbone switch forwarding scheme of Merchant to the dynamic bandwidth classification method of Chawla for the purpose of providing a network switch with a decision making engine responsive to a received data packet to control its forwarding to a transmit port as suggested by Merchant (column 2 lines 13-16).

Claim 30, Chawla teaches a traffic manager using dynamic bandwidth assignment. Chawla does not teach receiving packets with associated egress flows from a switch fabric and queuing the packets for outputting to destination ports.

Merchant teaches receiving the packets with associated egress flows from a switch fabric (FIG. 3B, column 7 lines 21-29) referenced by the switch fabric Port Vector FIFO 56 forwarding packets to the Output Queue Write Side Mgmt Port 68a based on the egress forwarding descriptor, and queuing the packets for outputting to destination ports according to the egress flows (FIG. 3A, column 7 lines 29-58) referenced by the

forwarding of the packets to the Dequeuing Logic 76 for transmission through MAC output port 70c.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the backbone switch forwarding scheme of Merchant to the dynamic bandwidth classification method of Chawla for the purpose of providing a network switch with a decision making engine responsive to a received data packet to control its forwarding to a transmit port as suggested by Merchant (column 2 lines 13-16).

Claim 27, Chawla teaches a method for forwarding packets in a network processing device (FIG. 3) referenced by the Data Communications Device 201-B forwarding packets through the Data Transporter 300 in a network, comprising receiving packets associated with ingress flows (FIG. 2, column 3 lines 28-31, FIG. 4) referenced by the reception of packets at Input Port 505 wherein the packets contain flow information field TSPEC 191, queuing the packets according to the associated ingress flows (FIG. 2, FIG. 4, column 13 lines 51-64, FIG. 5) referenced by the input port 505 for receiving packets inclusive of a TSPEC 191 which is used to associate to an ingress flow and queued by the Data Scheduler 320 for processing, identifying ingress flow information for the packets (FIG. 2, column 3 lines 28-31, FIG. 4) referenced by the reception of packets at Input Port 505 wherein the packets contain flow information field TSPEC 191, outputting the queued packets according to the ingress flow information (FIG. 5, column 17 lines 43-50) referenced by the Data Scheduler 320 depositing the packets to

queue entries based on the TSPEC field, identifying a Class of Service for the ingress flows and assigning the Class of Service to the packets before being output (column 18 TABLE 1) referenced by the Session ID to a bandwidth reservation and assigning a Flow ID label to the packet based on the TSPEC, and modifying the assigned Class of Service and assigning the modified Class of Service to the packets before being output (column 21 lines 49-59) referenced by the Bandwidth labeler recalculation of resource allocation to modify the labeling of the queue entries. Chawla does not teach outputting the packets to a switch fabric.

Merchant teaches output of the ingress flow packets to a switch fabric (FIG. 3A) referenced by the Queuing Logic forwarding of the packets to the Port Vector FIFO 56 switch fabric.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the backbone switch forwarding scheme of Merchant to the dynamic bandwidth classification method of Chawla for the purpose of providing a network switch with a decision making engine responsive to a received data packet to control its forwarding to a transmit port as suggested by Merchant (column 2 lines 13-16).

Claim 40, Chawla teaches a memory hub for dynamically bandwidth assignment. Chawla does not teach the first interface receives packets from a switch fabric. Merchant teaches a first interface receives packets or packet fragments from a switch fabric (FIG. 3A) referenced by the first interface Output Queue Write Side Mgmt Port

68a receiving packets from the switch fabric Port Vector FIFO 56, and the second interface outputs packets to an egress packet processor (FIG. 3A) referenced by the Dequeuing Logic 76 for forwarding the packets to the MAC port 70c for output transmission.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the backbone switch forwarding scheme of Merchant to the dynamic bandwidth classification method of Chawla for the purpose of providing a network switch with a decision making engine responsive to a received data packet to control its forwarding to a transmit port as suggested by Merchant (column 2 lines 13-16).

Claim 39, Chawla teaches a memory hub (FIG. 4, column 11 lines 47-59) referenced by the Data Communications Device 201 such as router or hub which contains data storage for memory, comprising a first interface for receiving packets or packet fragments having associated flow Ids (FIG. 2, FIG. 4, column 13 lines 51-67, column 14 lines 1-2) referenced by the input port 505 receiving packets with the TSPEC 191 field as flow id, a second interface for outputting the packets or packet fragments (FIG. 4, column 13 lines 51-67, column 14 lines 1-2) referenced by the Data Transporter 300 for switching data to the output port 506, a controller that queues the packets or packet fragments in a memory according to the associated flow Ids (FIG. 5, column 17 lines 16-50) referenced by the Data Scheduler 320 depositing packets to the Data Storage Mechanism queue 340-1 based on the TSPEC 191 field associated to a session, and

dequeues the packets from the memory according to the associated flow Ids (FIG. 5, column 16 lines 40-65) referenced by the Dequeuing Mechanism 350 removing packets from the Data Storage Mechanism 340-1 which are assigned label queues, wherein the memory hub is an integrated circuit (FIG. 4, column 11 lines 47-59) referenced by the Data Communications Device 201 which is a router composed of integrated circuits, with the first interface receiving the packets or packet fragments from a source port (FIG. 2, FIG. 4, column 13 lines 51-67, column 14 lines 1-2) referenced by the input port 505 receiving packets with the TSPEC 191 field as flow id, the second interface outputting the packets or packet fragments (FIG. 4, column 13 lines 51-67, column 14 lines 1-2) referenced by the Data Transporter 300 for switching data to the output port 506, and including a third interface communicating with the controller (FIG. 4) referenced by the Data interface between the Data Scheduler 320 and the Data Storage Mechanism 340, and a fourth interface communicating with an external memory (FIG. 4, column 14 lines 3-13) referenced by the Network Policy Server 150 which has memory carrying policy information on bandwidth use. Chawla does not teach outputting the packets to a switch fabric.

Merchant teaches output of the ingress flow packets to a switch fabric (FIG. 3A) referenced by the Queuing Logic forwarding of the packets to the Port Vector FIFO 56 switch fabric.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the backbone switch forwarding scheme of Merchant to the dynamic bandwidth classification method of Chawla for the purpose of providing a

network switch with a decision making engine responsive to a received data packet to control its forwarding to a transmit port as suggested by Merchant (column 2 lines 13-16).

5. Claims 7, 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chawla and Merchant as applied to claims 20, 21, 24, 36, 37, 38, 51, 44, 45, 46 ,1, 2, 3, 4, 5, 8, 10, 11, 12, 23, 25, 26, 28, 30, 27, 40, 39 above, and further in view of Opalka et al. (Patent Number 6259699).

Claim 7, Chawla teach switches dynamic bandwidth classification using an ingress traffic manager (FIG. 4) referenced by the Bandwidth Reservation Processor 500. Chawla and Merchant do not teach wherein an ingress traffic manager drops packets for ingress flows that back up.

Opalka teaches an ingress traffic manager that drops frames or cells (FIG. 14, column 14, lines 59-67, column 15 lines 1-4) referenced by an ingress forward engine that determines when frames or cells are dropped including queues of ingress flow that are full which is indicative of tracked ingress flow information. This function associates to the ingress traffic manager directing the ingress controller to drop packets.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the method of processing packets in a common switch of Opalka to the dynamic bandwidth classification switch forwarding method of Chawla and Merchant for the purpose of using common algorithms for forwarding based on control information contained in the cell or frame and in such a manner as to preserve QoS characteristics necessary for correct operation of cell forwarding as suggested by Opalka (column 4 lines 17-27).

Claim 29, Chawla teach switches dynamic bandwidth classification using an ingress traffic manager (FIG. 4) referenced by the Bandwidth Reservation Processor 500. Chawla and Merchant do not teach dropping queued packets when a back up is indicated by the tracked ingress flow information.

Opalka teaches dropping queued packets when a back up is indicated by the tracked ingress flow information (FIG. 14, column 14, lines 59-67, column 15 lines 1-4) referenced by an ingress forward engine that determines when frames or cells are dropped including queues of ingress flow that are full which is indicative of tracked ingress flow information.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the method of processing packets in a common switch of Opalka to the dynamic bandwidth classification switch forwarding method of Chawla and Merchant for the purpose of using common algorithms for forwarding based on control information contained in the cell or frame and in such a manner as to preserve

QoS characteristics necessary for correct operation of cell forwarding as suggested by Opalka (column 4 lines 17-27).

Allowable Subject Matter

6. Claims 32, 35, 41-43 are allowed.

Claims 6, 9, 13-19, 22, 31, 33-34, 47 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John L. Shew whose telephone number is 571-272-3137. The examiner can normally be reached on 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wellington Chin can be reached on 571-272-3134. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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WELLINGTON CHIN